

ITEC- 2022- 2023

Networking, Data-Center and Security

A.	Name of the Institute	Centre for Development of Advanced Computing, Mohali
B.	Name/Title of the Course	Networking, Data-Center and Security
C.	Proposed Dates and Duration of the Course in weeks/ months	23 rd February, 2023 - 22 nd March, 2023 Duration: Four week(s)
D.	Eligibility Criteria for Participants	
	1. Educational Qualification	Technical Graduate (Computer Science/ Electronics/Telecommunications/or equivalent) with working knowledge of computers.
	2. Work Experience	As per MEA guidelines
	3. Age Limit	As per MEA guidelines
	4. Target group (Level of participants and target ministry/department etc. may be identified)	Working Professional with knowledge of computers.
E.	Aims & Objectives of the Course	<p>At the end of the course, Students will be able:</p> <ul style="list-style-type: none"> • To understand the fundamentals of a data centre and its management • To understand and identify the potential loopholes present in the applications • To understand Android, IOS application security • To learn various applications, mobile and network security tools. • To prevent attacks and other threats in a network or Internetwork. • To facilitate network security using security methods.
F.	Details / Content of the Course	<p align="center">Week 1</p> <p>Introduction to Computer Networks & Linux</p> <ul style="list-style-type: none"> • Introduction to Networking with Lab • OSI Model • TCP/IP Headers • IP Protocol and Addressing • Basic Network Devices & Their functionality • Routing process and Routing tables with Lab, Access Control lists • System Administration tools • Linux Fundamentals and Commands, iptables • Network Designing, Configuring and Administration

Week 2

Data-Centre

- Fundamentals of Data-Centre
- Roles & Objectives of Data-Centre
- Design and Overview of Data-Centre
- Data-Centre Management
- Data-Centre Industry and Management

Security

- Introduction to Darknet/Darkweb in cyber security
- Desktop and Laptop Data Security
- Digital Footprints, anonymous browsing and testing
- Password security, browser security, wifi security

Practical Approach of Application Security and Understanding on OWASP Top 10

- OS security
- Know Your Operating System and Securing OS – Windows and Linux
- Hardening OS – Windows and Linux

System Hacking

- System Hacking Concepts
 - Cracking Passwords
 - Escalating Privileges
 - Executing Applications
 - Hiding Files
- Covering Tracks

Hacking Web Servers

- Web Server Concepts
 - Web Server Attacks
 - Web Server Attack Methodology
 - Web Server Attack Tools
 - Countermeasures
 - Patch Management
- Web Server Security Tools

Week 3

Social Engineering Techniques

- Social Media, Who is in your Network, Internet Memory, Privacy In cyberspace
- Social Engineering Concepts

- Social Engineering Techniques
- Insider Threats
- Impersonation on Social Networking Sites
- Identity Theft
- Countermeasures
- Social Engineering Penetration Testing
- What is Phishing, Smishing and Vishing
- Tools to check the website is genuine or not?
Preventive measures

Vulnerability Analysis and Penetration Testing

- Vulnerability Assessment Concepts
- Vulnerability Assessment Solutions
- Vulnerability Scoring Systems
- Vulnerability Assessment Tools
- Vulnerability Assessment Reports

Mobile security

- Understanding Android App Security
- Understanding IOS App Security
- Threat to Smart Device User-Maintain Cyber
- Hygiene in Smartphone
- Scanning Networks
- Network Scanning Concepts
- Scanning Tools
- Scanning Techniques
- Scanning Beyond IDS and Firewall

Week 4

Malware and Security Threats

- Malware Concepts
- Trojan Concepts
- Virus and Worm Concepts
- Malware Analysis
- Countermeasures
- Anti-Malware Software
- Malware Penetration Testing
- Bot and Botnets, Advanced Persistent Threats

Network Security – Firewalls and overview of

		<p>IDS/IPS/ SIEM</p> <ul style="list-style-type: none"> • Cyber Security Methods, Perimeter Security Fundamentals, Network Monitoring, PCAP (Packet) Capturing, Antivirus and Firewalls • Intrusion Detection/Prevention System (IDS/IPS) • SIEM • Mitre Attack framework and The Cyber Kill Chain Process • Honeypots/Honeynets -Vulnerability Assessment Attacks (Test Cases) • IRS/ SOAR • UEBA • Understanding about SOC (Security Operation Centre) Operations
G.	Mode of Evaluation of Performance of the ITEC Participant	Theory, viva voce & Practical